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**INFORMATION SYSTEM ADOPTION AMONG SMALL MEDIUM
ENTERPRISES IN THE MALAYSIAN PRINTING INDUSTRY**

HIEW TZE KONG



**DOCTOR OF BUSINESS ADMINISTRATION
UNIVERSITI UTARA MALAYSIA
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**INFORMATION SYSTEM ADOPTION AMONG SMALL MEDIUM
ENTERPRISES IN THE MALAYSIAN PRINTING INDUSTRY**

By

HIEW TZE KONG



**Dissertation Submitted to
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In Partial Fulfillment of Requirement of the Doctor of Business Administration**



OTHMAN YEOP ABDULLAH GRADUATE SCHOOL OF BUSINESS
UNIVERSITI UTARA MALAYSIA

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ABSTRACT

Many researchers have acknowledged the importance of adopting the Information System (IS) to enhance an organization's performance. In Malaysia, very few studies have examined the extent of IS adoption from a business process perspective. The objective of this study was to determine the technological, organizational and environmental factors that influence the extent of IS adoption among the small and medium sized enterprises (SMEs) in the printing industry. In addition, the moderating influence of owners/CEOs' innovativeness in the relationship between the determinants and the extent of IS adoption was also examined. A six-factor framework of three contexts from the technological-organizational-environmental (TOE) theory was used to examine the extent of IS adoption in the business processes. The business processes examined were adapted from Porter's business value chain. A structured questionnaire for the attention of owners/CEOs of the printing companies was used to obtain the data and measure the variables. The six independent variables examined consisted of three technological factors (relative advantage, compatibility and complexity of technology), one organizational factor (firm's resources) and two environmental factors (customers' pressure and competition). The dependent variable was the extent of IS adoption for business processes, measured by internal communication, internal administration, outbound communication, order-taking, inbound communication and procurement. The findings showed that resources and relative advantage influence the overall extent of IS adoption. Relative advantage and firm's resources influence IS adoption for internal communication. Relative advantage and firm's resources influence IS adoption for outbound communication. Firm's resources and competition influence IS adoption of order-taking. Relative advantage, firm's resources and customers' pressure influence IS adoption for inbound communication. Compatibility and firm's resources influence IS adoption for procurement. However, owners/CEOs' innovativeness does not moderate the influence of the relationship between the antecedents and the extent of IS adoption of all the business processes.

Keywords: information system, adoption, TOE, SMEs, printing industry.

ABSTRAK

Ramai penyelidik telah mengakui kepentingan menggunakan Sistem Maklumat (IS) untuk meningkatkan prestasi organisasi. Di Malaysia, beberapa kajian telah menyelidik sejauh mana IS diguna pakai dari perspektif proses perniagaan. Objektif kajian ini adalah untuk menentukan faktor-faktor teknologi, organisasi dan persekitaran yang mempengaruhi tahap penggunaan IS dalam kalangan perusahaan kecil dan sederhana (PKS) industri percetakan. Di samping itu, pengaruh penyederhanaan kemampuan pemilik/CEO dalam hubungan antara penentu dan sejauh mana IS diguna pakai juga diperiksa. Rangka kerja enam faktor yang mengandungi tiga konteks dari segi teori teknologi-organisasi-persekitaran (TOE) digunakan untuk meneliti tahap guna pakai IS dalam proses perniagaan. Proses perniagaan yang diperiksa disesuaikan daripada rantai nilai perniagaan *Porter*. Soal selidik berstruktur yang melibatkan Pemilik/CEO syarikat percetakan digunakan untuk memperoleh data dan mengukur pemboleh ubah. Sebanyak enam pemboleh ubah bebas yang diperiksa terdiri daripada tiga faktor teknologi (kelebihan relatif, keserasian dan kerumitan teknologi), satu faktor organisasi (sumber firma) dan dua faktor alam sekitar (tekanan pelanggan dan persaingan). Pemboleh ubah bersandar pula adalah tahap guna pakai IS untuk proses perniagaan, yang diukur oleh komunikasi dalaman, pentadbiran dalaman, komunikasi keluar, pengambilan pesanan, komunikasi masuk dan perolehan. Dapatan kajian menunjukkan bahawa sumber firma dan kelebihan relatif mempengaruhi tahap keseluruhan penggunaan IS. Kelebihan relatif dan sumber-sumber firma mempengaruhi penggunaan IS untuk komunikasi dalaman. Kelebihan relatif dan sumber firma mempengaruhi penggunaan IS untuk komunikasi keluar. Sumber perusahaan dan persaingan mempengaruhi penggunaan IS untuk pengambilan pesanan. Kelebihan relatif, sumber perusahaan dan tekanan pelanggan mempengaruhi penggunaan IS untuk komunikasi masuk. Kesesuaian dan sumber-sumber perusahaan mempengaruhi penggunaan IS untuk perolehan. Walau bagaimanapun, kemampuan inovatif pemilik/CEO tidak menyederhanakan pengaruh hubungan antara penyebab dan sejauh mana IS diamalkan untuk semua proses perniagaan.

Kata kunci: sistem maklumat, penggunaan, TOE, PKS, industri percetakan.

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CHAPTER ONE

INTRODUCTION

1.1 BACKGROUND OF STUDY

Small and Medium Enterprises (SMEs) are important players in the economy as they can provide employment, promote sustainable industrialization and encourage innovation. By active participation in digital transformation, SMEs can boost economic growth as they can gain access to both the local and global markets (OECD, 2017). While digitalization offers new opportunities for SMEs to reach a wider market, many SMEs are not reaping the benefits of the technological transition as they are lagging behind in adopting Information System (IS) (OECD, 2017). For example, fewer SMEs are adopting enterprise resources planning (ERP) software and cloud computing applications to manage their business as compared to large organizations (OECD, 2017). IS can be used to strategically support operations, management and decision-making in business (Thong, 1999; Davis & Oslon, 1985; Zhu, Kraemer & Xu, 2003). Those SMEs that successfully adopt IS can be more competitive and reach local and global markets at a relatively lower cost (OECD, 2017).

The importance of adoption of IS has led to many studies being conducted. Past IS research has been mainly carried out on large businesses and in developed economies, like the United States of America (USA), Canada and countries in Europe. The study on IS adoption among the SMEs is particularly important for the less developed and developing countries as their economies are largely dependent on the SMEs (Alzougool & Kurnia, 2010). Subsequently, many studies have been undertaken by researchers focusing on SMEs in the Asia-Pacific region (Thong, 2001; Seyal &

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APPENDICES



Appendix A : Non response bias test.

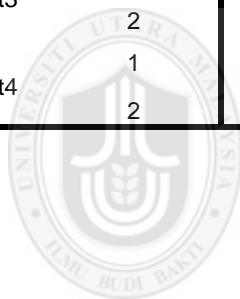


Group Statistics

	BiasT	N	Mean	Std. Deviation	Std. Error Mean
TECRelative Advantage1	1	96	3.78	1.078	.110
	2	35	3.63	1.114	.188
TECRelative Advantage2	1	96	3.61	1.019	.104
	2	35	3.51	1.067	.180
TECRelative Advantage3	1	96	3.78	1.068	.109
	2	35	3.83	1.043	.176
TECRelative Advantage4	1	96	3.85	1.066	.109
	2	35	3.80	1.052	.178
TECCompatibility1	1	95	3.45	.920	.094
	2	34	3.41	.957	.164
TECCompatibility2	1	95	3.61	.926	.095
	2	34	3.47	.992	.170
TECCompatibility3	1	95	3.68	.948	.097
	2	33	3.55	1.092	.190
TECComplexity1	1	95	3.58	1.087	.112
	2	35	3.54	.980	.166
TECComplexity2	1	95	3.47	1.100	.113
	2	35	3.51	.951	.161
TECComplexity3	1	95	3.56	1.069	.110
	2	35	3.54	.980	.166
TECComplexity4	1	95	3.41	1.144	.117
	2	35	3.34	.968	.164
ORGResources1	1	96	3.27	1.119	.114
	2	35	3.37	.843	.143
ORGResources2	1	96	3.14	1.101	.112
	2	35	3.00	.970	.164
ORGResources3	1	96	3.11	1.150	.117
	2	35	2.97	1.014	.171
ORGResources4	1	96	2.82	1.026	.105
	2	35	2.86	1.004	.170
ENVCustomerPressure1	1	96	3.19	1.029	.105
	2	35	3.23	1.031	.174
ENVCustomerPressure2	1	96	3.40	1.156	.118
	2	35	3.14	1.264	.214
ENVCustomerPressure3	1	96	3.41	1.111	.113
	2	35	3.34	1.259	.213
ENVCustomerPressure4	1	96	3.14	1.148	.117
	2	35	3.31	1.132	.191
ENVCompetition1	1	96	3.84	1.146	.117

	2	35	4.17	.891	.151
ENVCompetition2	1	96	3.66	1.122	.115
	2	35	3.94	.873	.147
ENVCompetition3	1	96	3.70	1.116	.114
	2	35	3.66	1.083	.183
Innovation Item1	1	92	3.63	.980	.102
	2	35	3.66	.938	.158
Innovation Item2	1	92	3.45	1.062	.111
	2	35	3.11	1.132	.191
Innovation Item3	1	92	3.63	.922	.096
	2	35	3.60	.881	.149
Innovation Item4	1	92	3.40	.973	.101
	2	35	3.57	1.008	.170
EXT Internal Comm1	1	96	3.93	1.216	.124
	2	35	3.86	1.167	.197
EXT Internal Comm2	1	96	3.35	1.265	.129
	2	35	3.63	1.330	.225
EXT Internal Comm3	1	94	3.44	1.169	.121
	2	35	3.71	1.226	.207
EXT Internal Comm4	1	96	3.44	1.177	.120
	2	35	3.66	1.327	.224
EXT Internal Comm5	1	95	3.42	1.208	.124
	2	35	3.49	1.358	.230
EXT Internal Admin1	1	96	3.52	1.240	.127
	2	35	3.40	1.355	.229
EXT Internal Admin2	1	96	3.31	1.324	.135
	2	35	3.03	1.294	.219
EXT Internal Admin3	1	96	2.98	1.361	.139
	2	35	3.00	1.306	.221
EXT Out Comm1	1	96	3.99	1.129	.115
	2	35	4.14	.944	.160
EXT Out Comm2	1	96	3.70	1.258	.128
	2	35	3.74	1.094	.185
EXT Out Comm3	1	96	3.51	1.376	.140
	2	35	4.00	1.085	.183
EXT Out Comm4	1	96	3.88	1.163	.119
	2	35	3.91	1.147	.194
EXT Out Comm5	1	96	3.81	1.242	.127
	2	35	3.91	1.147	.194
EXT Out Comm6	1	96	4.06	1.054	.108
	2	35	4.14	1.004	.170
EXT Order Taking1	1	96	4.06	1.212	.124

	2	35	4.37	.770	.130
EXT Order Taking2	1	96	3.83	1.270	.130
	2	35	4.46	.780	.132
EXT Order Taking3	1	96	2.96	1.450	.148
	2	35	3.60	1.479	.250
EXT Inbound Comm1	1	96	3.38	1.172	.120
	2	35	3.89	1.183	.200
EXT Inbound Comm2	1	96	3.60	1.147	.117
	2	35	3.80	1.183	.200
EXT Inbound Comm3	1	96	3.06	1.263	.129
	2	35	3.63	1.308	.221
EXT Inbound Comm4	1	96	1.99	1.210	.123
	2	35	2.69	1.409	.238
EXT Procurement1	1	96	3.20	1.211	.124
	2	35	3.60	1.143	.193
EXT Procurement2	1	96	3.60	1.183	.121
	2	35	3.77	1.285	.217
EXT Procurement3	1	96	2.26	1.283	.131
	2	35	2.94	1.494	.253
EXT Procurement4	1	95	2.48	1.367	.140
	2	35	3.03	1.524	.258



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Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means		
		F	Sig.	t	df	Sig. (2- tailed)
TECRelative Advantage1	Equal variances assumed	.001	.969	.711	129	.478
	Equal variances not assumed			.700	58.744	.487
TECRelative Advantage2	Equal variances assumed	.053	.817	.492	129	.624
	Equal variances not assumed			.482	58.075	.632
TECRelative Advantage3	Equal variances assumed	.300	.585	-.226	129	.822
	Equal variances not assumed			-.228	61.758	.820
TECRelative Advantage4	Equal variances assumed	.111	.740	.258	129	.797
	Equal variances not assumed			.260	61.175	.796
TECCompatibility1	Equal variances assumed	.000	.986	.220	127	.826
	Equal variances not assumed			.216	56.262	.830
TECCompatibility2	Equal variances assumed	.095	.759	.742	127	.459
	Equal variances not assumed			.718	54.916	.476
TECCompatibility3	Equal variances assumed	1.069	.303	.696	126	.488
	Equal variances not assumed			.650	49.786	.519
TECComplexity1	Equal variances assumed	.823	.366	.172	128	.864
	Equal variances not assumed			.181	66.835	.857
TECComplexity2	Equal variances assumed	1.303	.256	-.193	128	.847
	Equal variances not assumed			-.207	69.648	.837
TECComplexity3	Equal variances assumed	.728	.395	.073	128	.942
	Equal variances not assumed			.076	65.744	.940

TECComplexity4	Equal variances assumed	2.720	.102	.311	128	.756
	Equal variances not assumed			.336	71.137	.738
ORGResources1	Equal variances assumed	2.749	.100	-.484	129	.629
	Equal variances not assumed			-.551	79.896	.583
ORGResources2	Equal variances assumed	2.046	.155	.642	129	.522
	Equal variances not assumed			.681	68.080	.498
ORGResources3	Equal variances assumed	.952	.331	.650	129	.517
	Equal variances not assumed			.689	68.027	.493
ORGResources4	Equal variances assumed	.003	.956	-.170	129	.865
	Equal variances not assumed			-.172	61.607	.864
ENVCustomerPressure1	Equal variances assumed	.006	.940	-.202	129	.840
	Equal variances not assumed			-.202	60.319	.841
ENVCustomerPressure2	Equal variances assumed	.131	.718	1.081	129	.282
	Equal variances not assumed			1.037	56.049	.304
ENVCustomerPressure3	Equal variances assumed	.747	.389	.279	129	.781
	Equal variances not assumed			.263	54.459	.794
ENVCustomerPressure4	Equal variances assumed	.007	.934	-.792	129	.430
	Equal variances not assumed			-.797	61.223	.428
ENVCompetition1	Equal variances assumed	3.514	.063	-1.531	129	.128
	Equal variances not assumed			-1.719	77.311	.090
ENVCompetition2	Equal variances assumed	6.149	.014	-1.367	129	.174
	Equal variances not assumed			-1.535	77.317	.129
ENVCompetition3	Equal variances assumed	.098	.755	.187	129	.852
	Equal variances not assumed			.189	62.067	.851

Innovation Item1	Equal variances assumed	.080	.778	-.139	125	.890
	Equal variances not assumed			-.142	64.021	.888
Innovation Item2	Equal variances assumed	.211	.647	1.542	125	.125
	Equal variances not assumed			1.499	58.182	.139
Innovation Item3	Equal variances assumed	.057	.811	.168	125	.867
	Equal variances not assumed			.172	64.098	.864
Innovation Item4	Equal variances assumed	.016	.899	-.867	125	.387
	Equal variances not assumed			-.853	59.551	.397
EXT Internal Comm1	Equal variances assumed	.006	.939	.294	129	.769
	Equal variances not assumed			.300	62.742	.765
EXT Internal Comm2	Equal variances assumed	.445	.506	-1.084	129	.281
	Equal variances not assumed			-1.058	57.851	.294
EXT Internal Comm3	Equal variances assumed	.506	.478	-1.186	127	.238
	Equal variances not assumed			-1.160	58.453	.251
EXT Internal Comm4	Equal variances assumed	1.544	.216	-.913	129	.363
	Equal variances not assumed			-.863	54.689	.392
EXT Internal Comm5	Equal variances assumed	1.572	.212	-.262	128	.794
	Equal variances not assumed			-.248	55.006	.805
EXT Internal Admin1	Equal variances assumed	.571	.451	.482	129	.631
	Equal variances not assumed			.462	56.053	.646
EXT Internal Admin2	Equal variances assumed	.596	.441	1.092	129	.277
	Equal variances not assumed			1.104	61.687	.274
EXT Internal Admin3	Equal variances assumed	.214	.644	-.078	129	.938
	Equal variances not assumed			-.080	62.728	.937

EXT Out Comm1	Equal variances assumed	.686	.409	-.717	129	.475
	Equal variances not assumed			-.779	71.711	.439
EXT Out Comm2	Equal variances assumed	.890	.347	-.187	129	.852
	Equal variances not assumed			-.200	68.931	.842
EXT Out Comm3	Equal variances assumed	5.528	.020	-1.899	129	.060
	Equal variances not assumed			-2.120	76.240	.037
EXT Out Comm4	Equal variances assumed	.193	.661	-.172	129	.864
	Equal variances not assumed			-.173	61.182	.863
EXT Out Comm5	Equal variances assumed	.523	.471	-.423	129	.673
	Equal variances not assumed			-.439	65.037	.662
EXT Out Comm6	Equal variances assumed	.399	.529	-.391	129	.697
	Equal variances not assumed			-.400	63.175	.691
EXT Order Taking1	Equal variances assumed	4.489	.036	-1.406	129	.162
	Equal variances not assumed			-1.720	95.323	.089
EXT Order Taking2	Equal variances assumed	11.353	.001	-2.720	129	.007
	Equal variances not assumed			-3.373	98.573	.001
EXT Order Taking3	Equal variances assumed	1.029	.312	-2.229	129	.028
	Equal variances not assumed			-2.208	59.397	.031
EXT Inbound Comm1	Equal variances assumed	.138	.711	-2.202	129	.029
	Equal variances not assumed			-2.192	59.963	.032
EXT Inbound Comm2	Equal variances assumed	.004	.947	-.858	129	.393
	Equal variances not assumed			-.845	58.812	.401
EXT Inbound Comm3	Equal variances assumed	1.202	.275	-2.248	129	.026
	Equal variances not assumed			-2.212	58.633	.031

EXT Inbound Comm4	Equal variances assumed	1.551	.215	-2.786	129	.006
	Equal variances not assumed			-2.594	53.334	.012
EXT Procurement1	Equal variances assumed	.135	.714	-1.707	129	.090
	Equal variances not assumed			-1.754	63.701	.084
EXT Procurement2	Equal variances assumed	.686	.409	-.700	129	.485
	Equal variances not assumed			-.673	56.322	.504
EXT Procurement3	Equal variances assumed	.573	.451	-2.575	129	.011
	Equal variances not assumed			-2.399	53.376	.020
EXT Procurement4	Equal variances assumed	.084	.772	-1.952	128	.053
	Equal variances not assumed			-1.856	55.392	.069



Appendix B

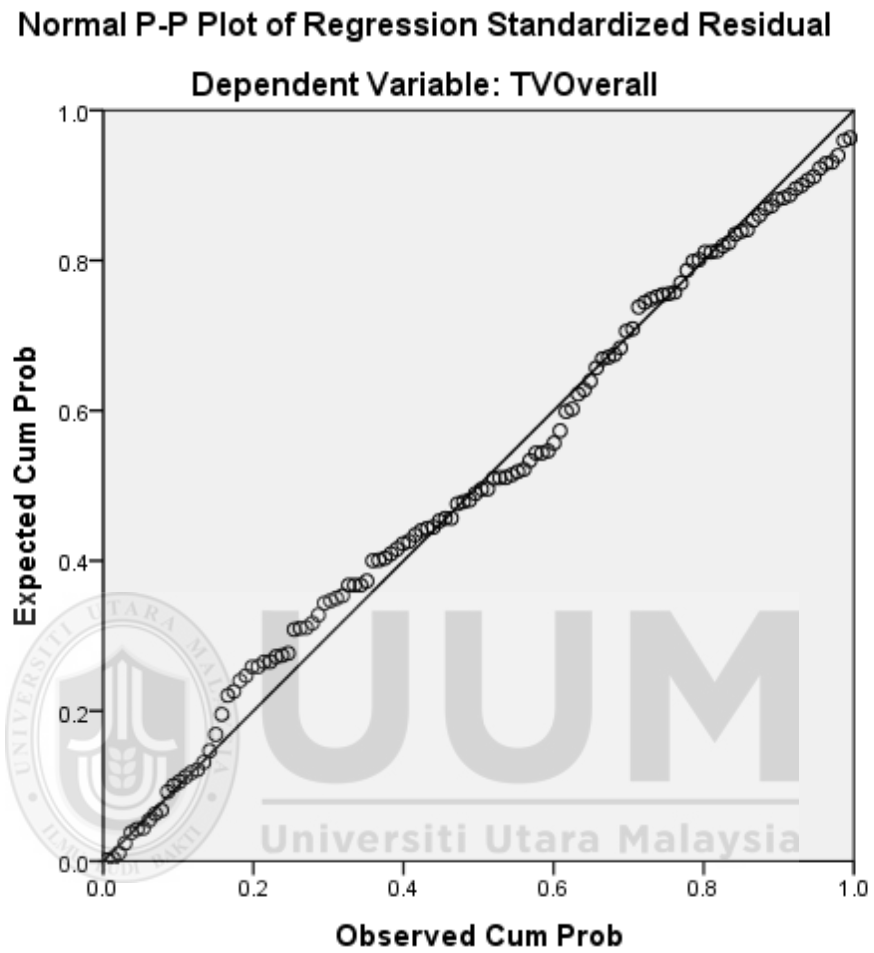
Percentage of Missing data for all variables

	N	Missing data (%)
TECRelative Advantage1	131	0.00
TECRelative Advantage2	131	0.00
TECRelative Advantage3	131	0.00
TECRelative Advantage4	131	0.00
TECCompatiblity1	129	1.53
TECCompatiblity2	129	1.53
TECCompatiblity3	128	2.29
TECComplexity1	130	0.76
TECComplexity2	130	0.76
TECComplexity3	130	0.76
TECComplexity4	130	0.76
ORGResouces1	131	0.00
ORGResources2	131	0.00
ORGResources3	131	0.00
ORGResources4	131	0.00
ENVCustomerPressure1	131	0.00
ENVCustomerPressure2	131	0.00
ENVCustomerPressure3	131	0.00
ENVCustomerPressure4	131	0.00
ENVCompetition1	131	0.00
ENVCompetition2	131	0.00
ENVCompetition3	131	0.00
Innovation Item1	127	3.05
Innovation Item2	127	3.05
Innovation Item3	127	3.05
Innovation Item4	127	3.05
EXT Internal Comm1	131	0.00
EXT Internal Comm2	131	0.00
EXT Internal Comm3	129	1.53
EXT Internal Comm4	131	0.00
EXT Internal Comm5	130	0.76
EXT Internal Admin1	131	0.00
EXT Internal Admin2	131	0.00
EXT Internal Admin3	131	0.00
EXT Out Comm1	131	0.00
EXT Out Comm2	131	0.00
EXT Out Comm3	131	0.00
EXT Out Comm4	131	0.00
EXT Out Comm5	131	0.00
EXT Out Comm6	131	0.00

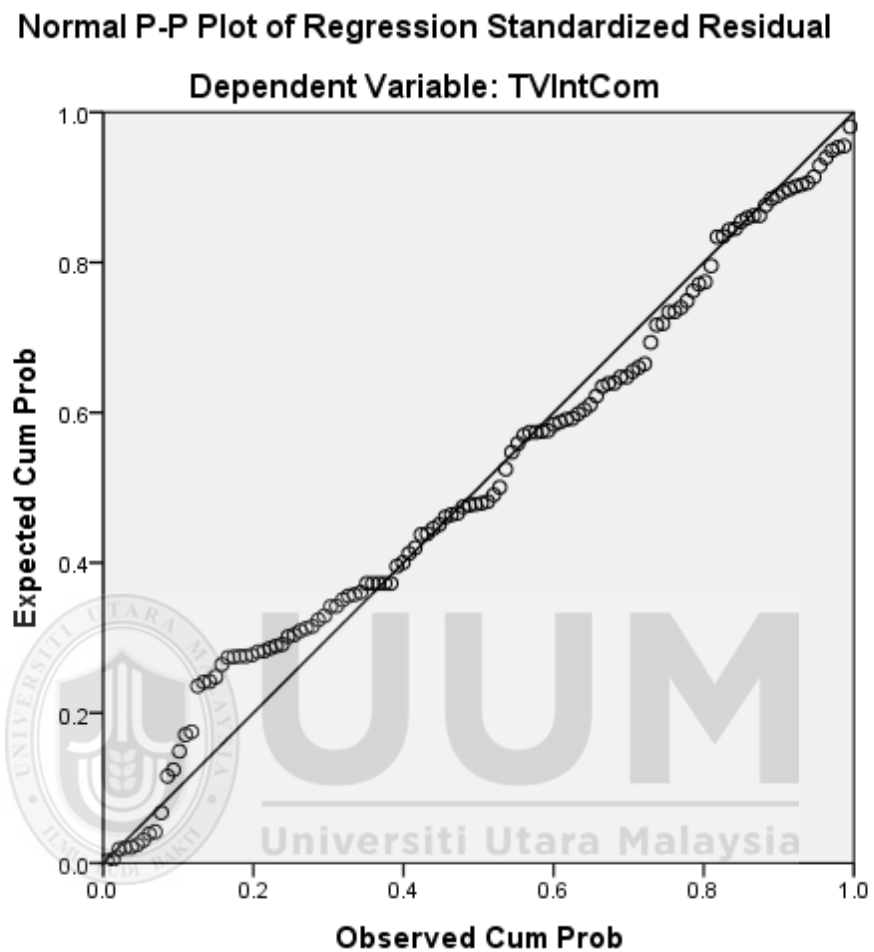
EXT Order Taking1	131	0.00
EXT Order Taking2	131	0.00
EXT Order Taking3	131	0.00
EXT Inbound Comm1	131	0.00
EXT Inbound Comm2	131	0.00
EXT Inbound Comm3	131	0.00
EXT Inbound Comm4	131	0.00
EXT Procurement1	131	0.00
EXT Procurement2	131	0.00
EXT Procurement3	131	0.00
EXT Procurement4	130	0.76



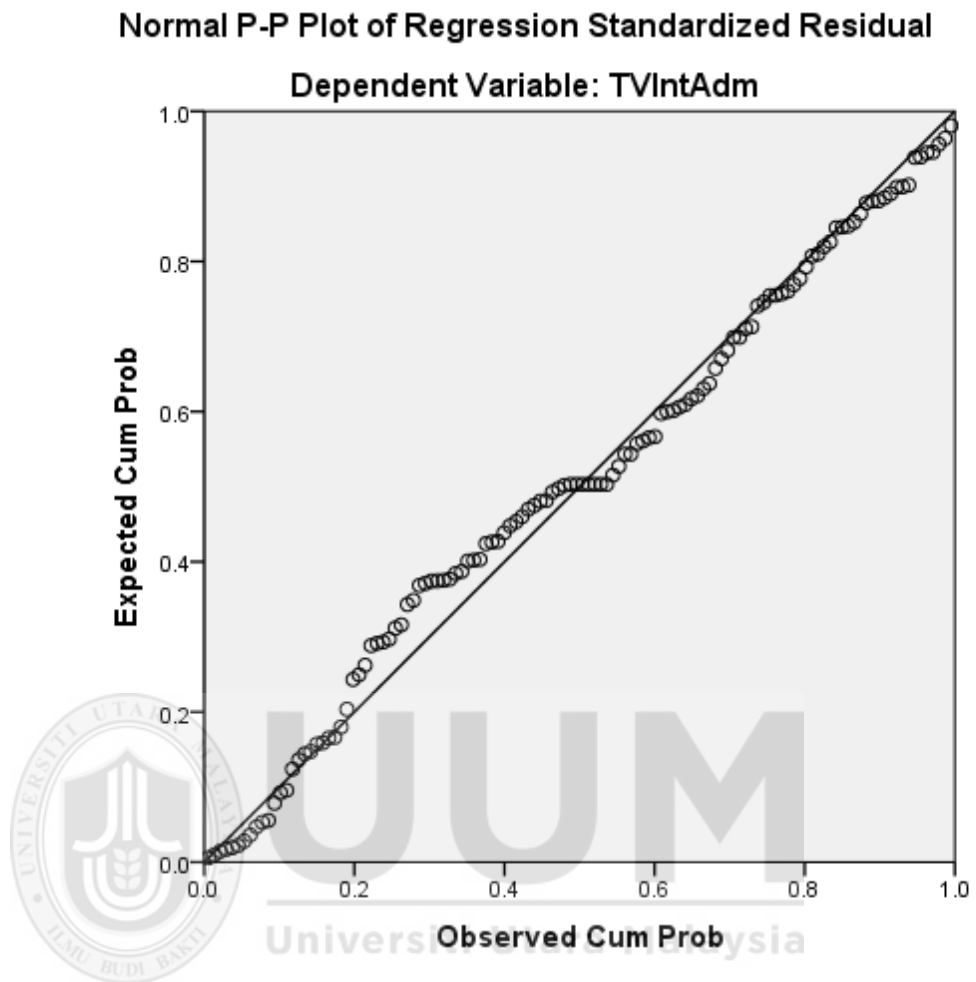
Appendix C1: Normal probability plot for overall extent of IS adoption.



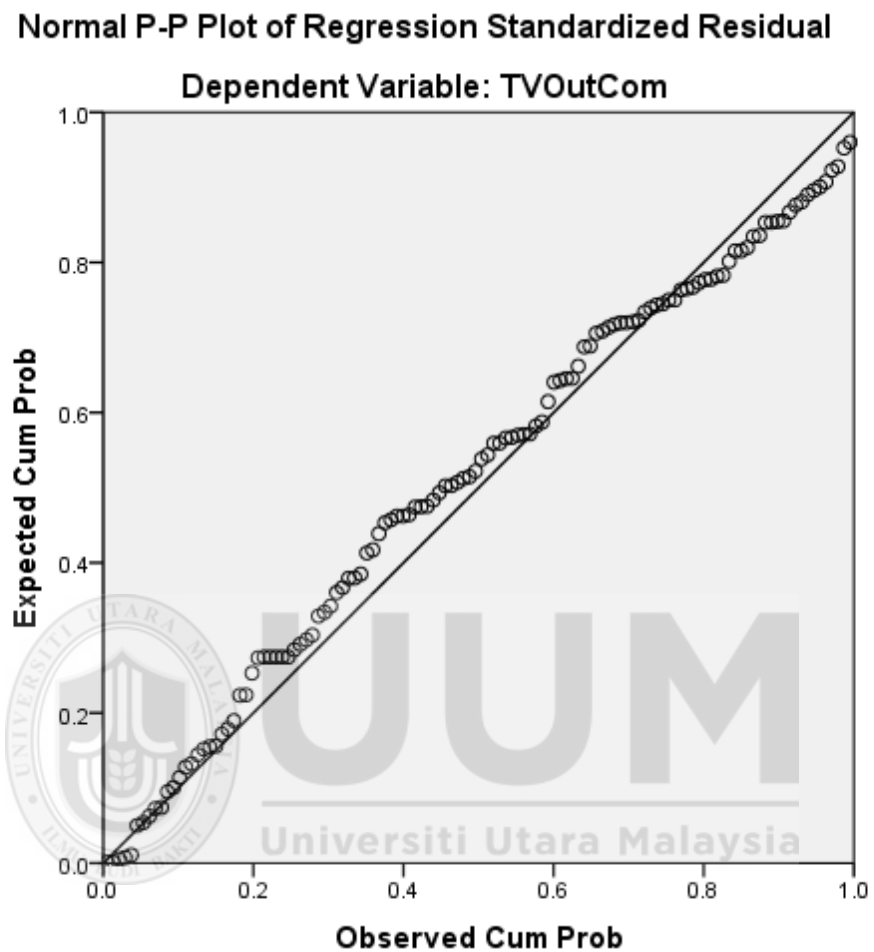
Appendix C2: Normal probability plot for IS adoption for internal communication.



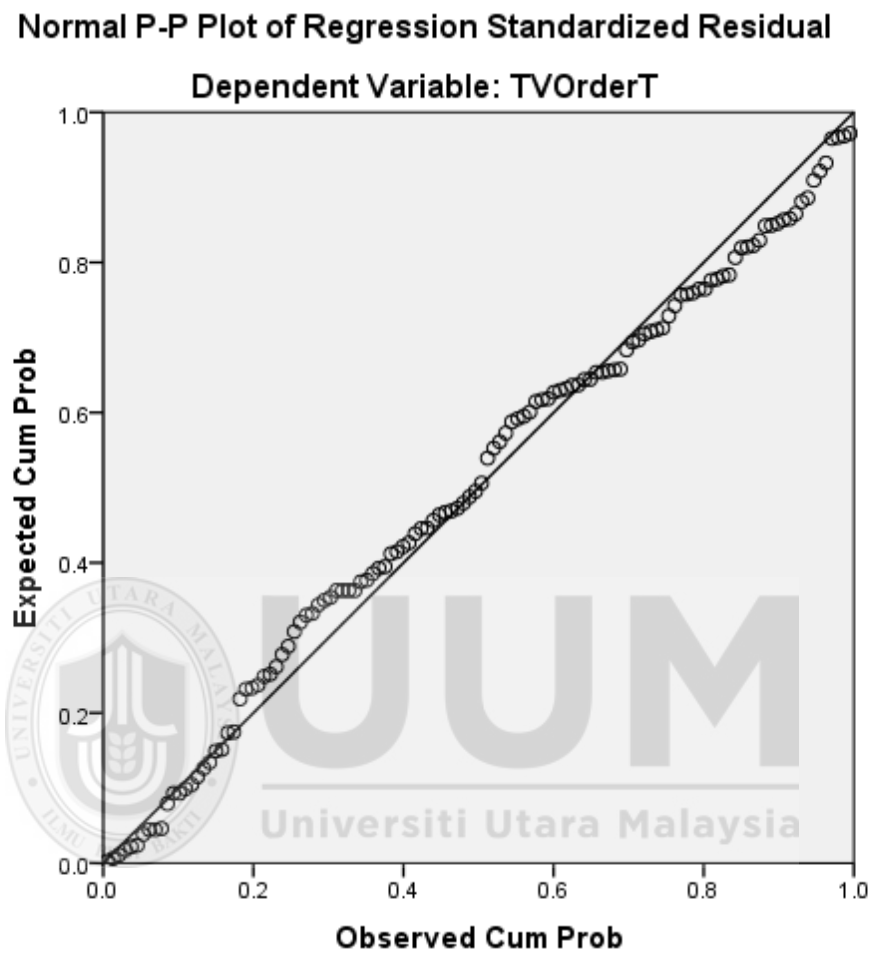
Appendix C3: Normal probability plot for IS adoption for internal administration.



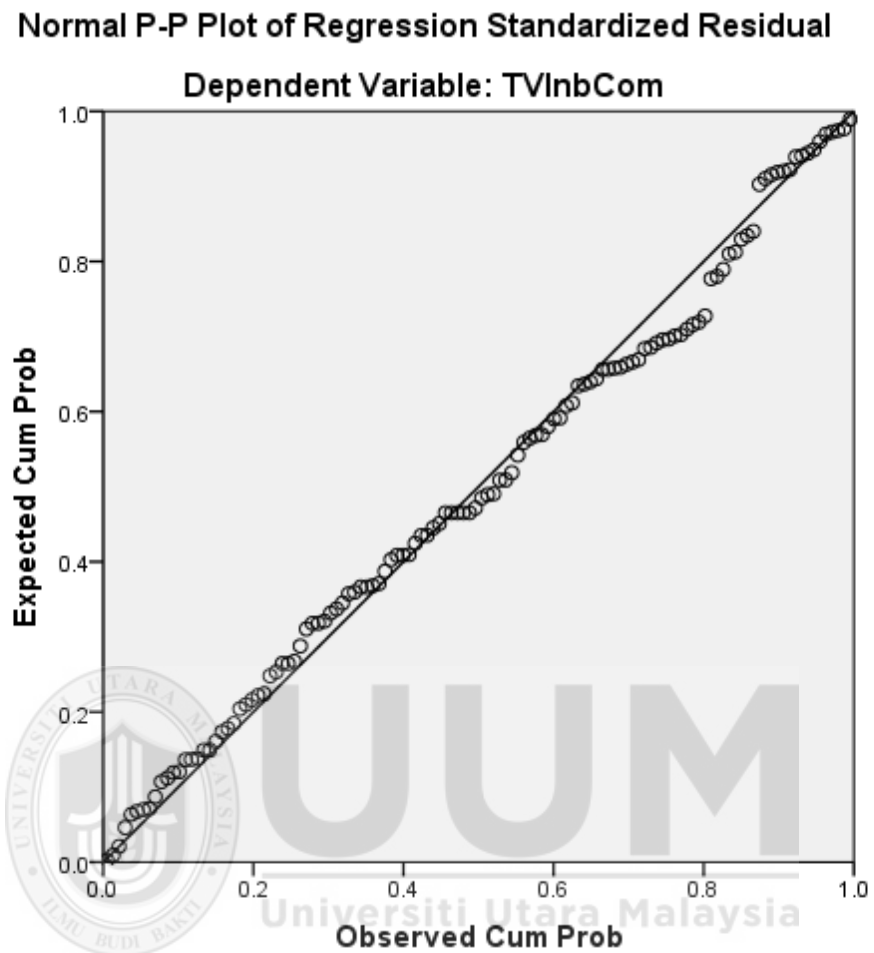
Appendix C4: Normal probability plot for IS adoption for outbound communication.



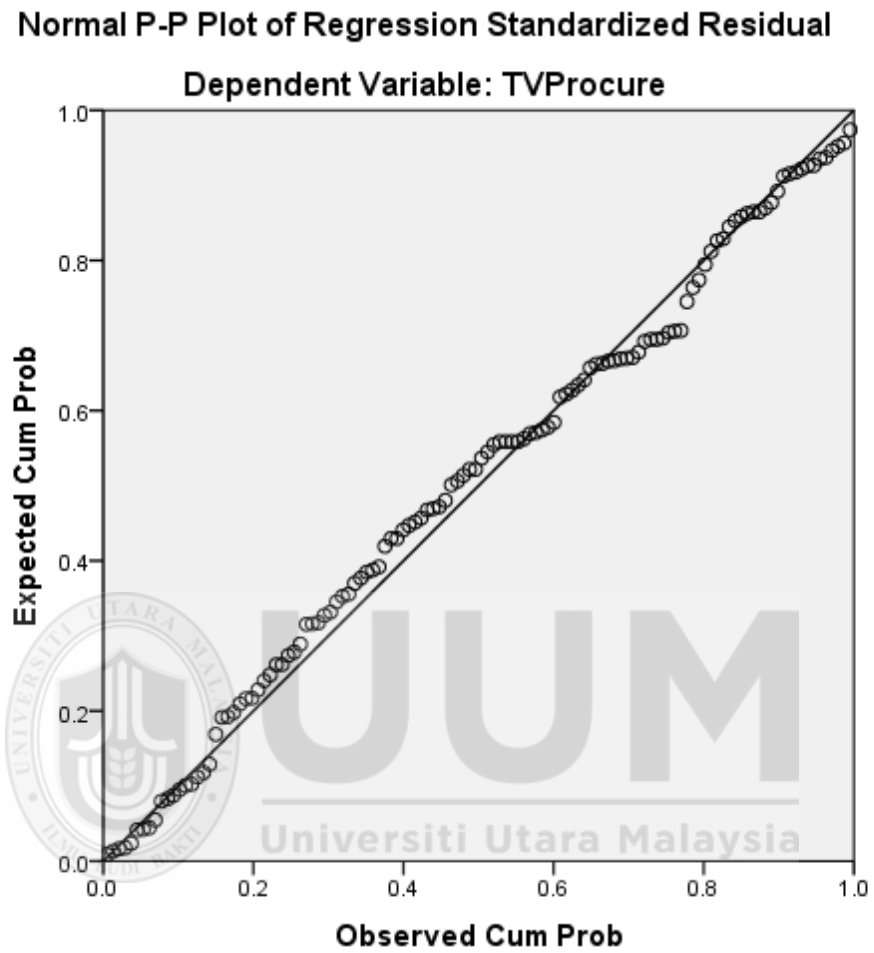
Appendix C5: Normal probability plot for IS adoption for order taking.



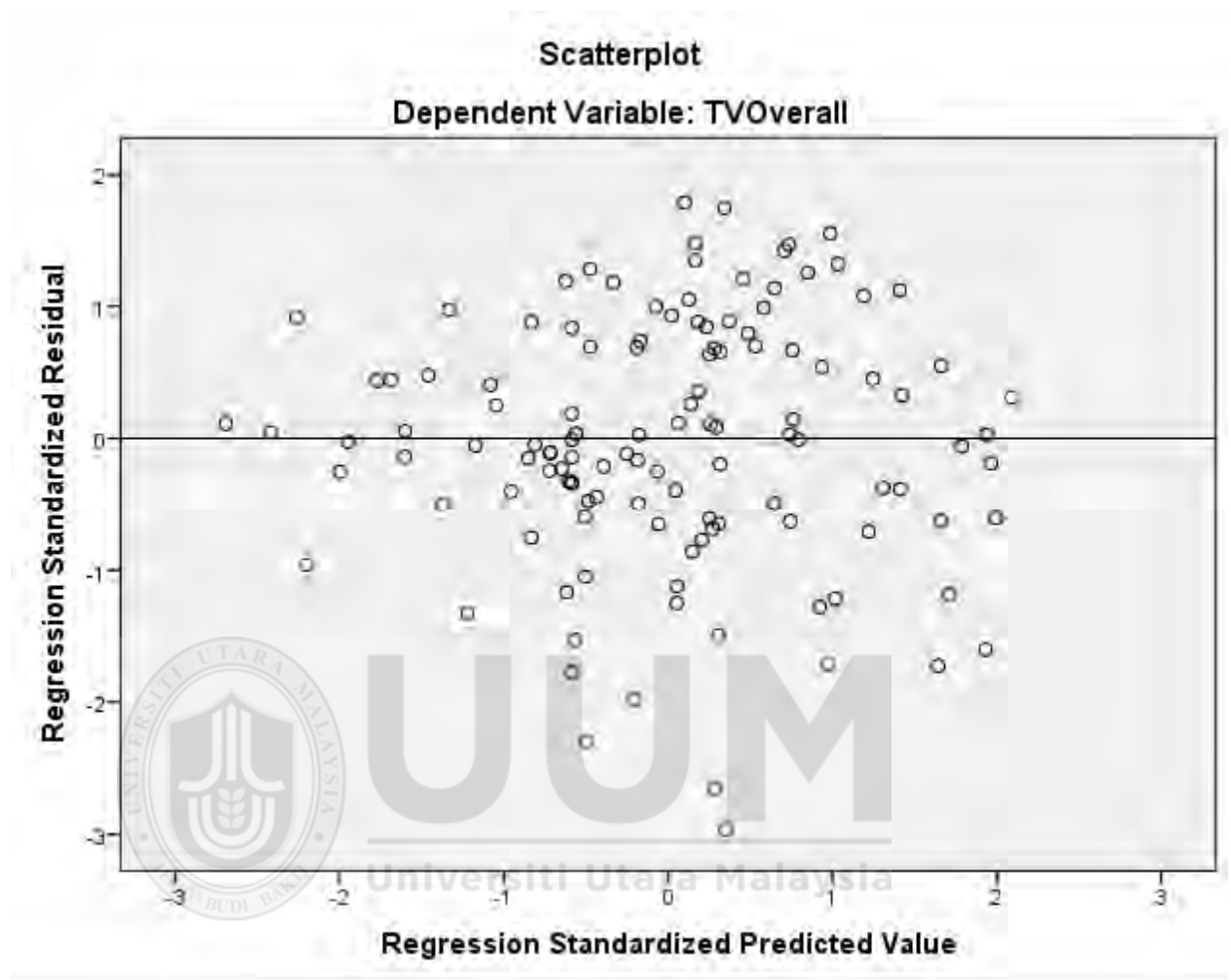
Appendix C6: Normal probability plot for IS adoption for inbound communication.



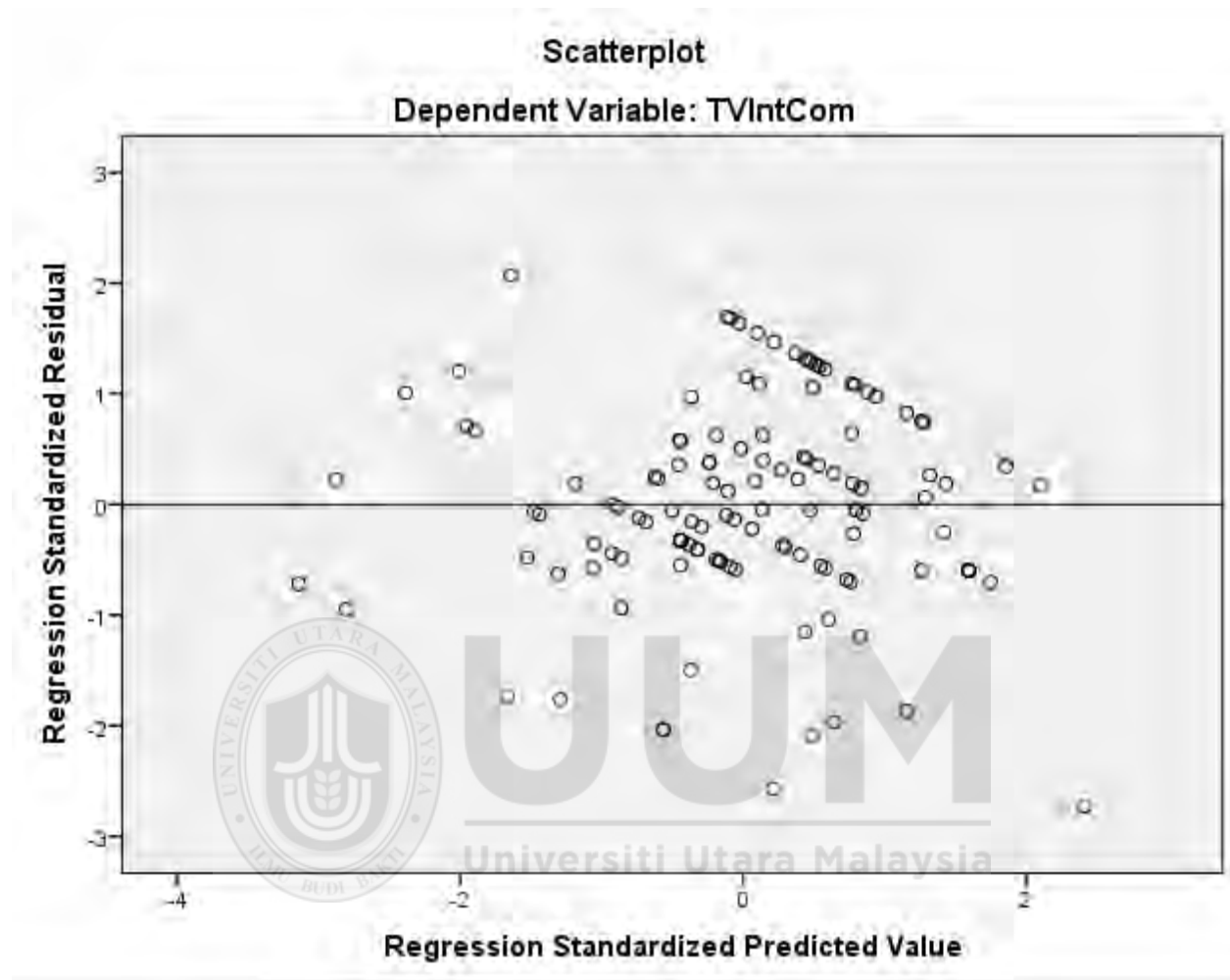
Appendix C7: Normal probability plot for IS adoption for procurement.



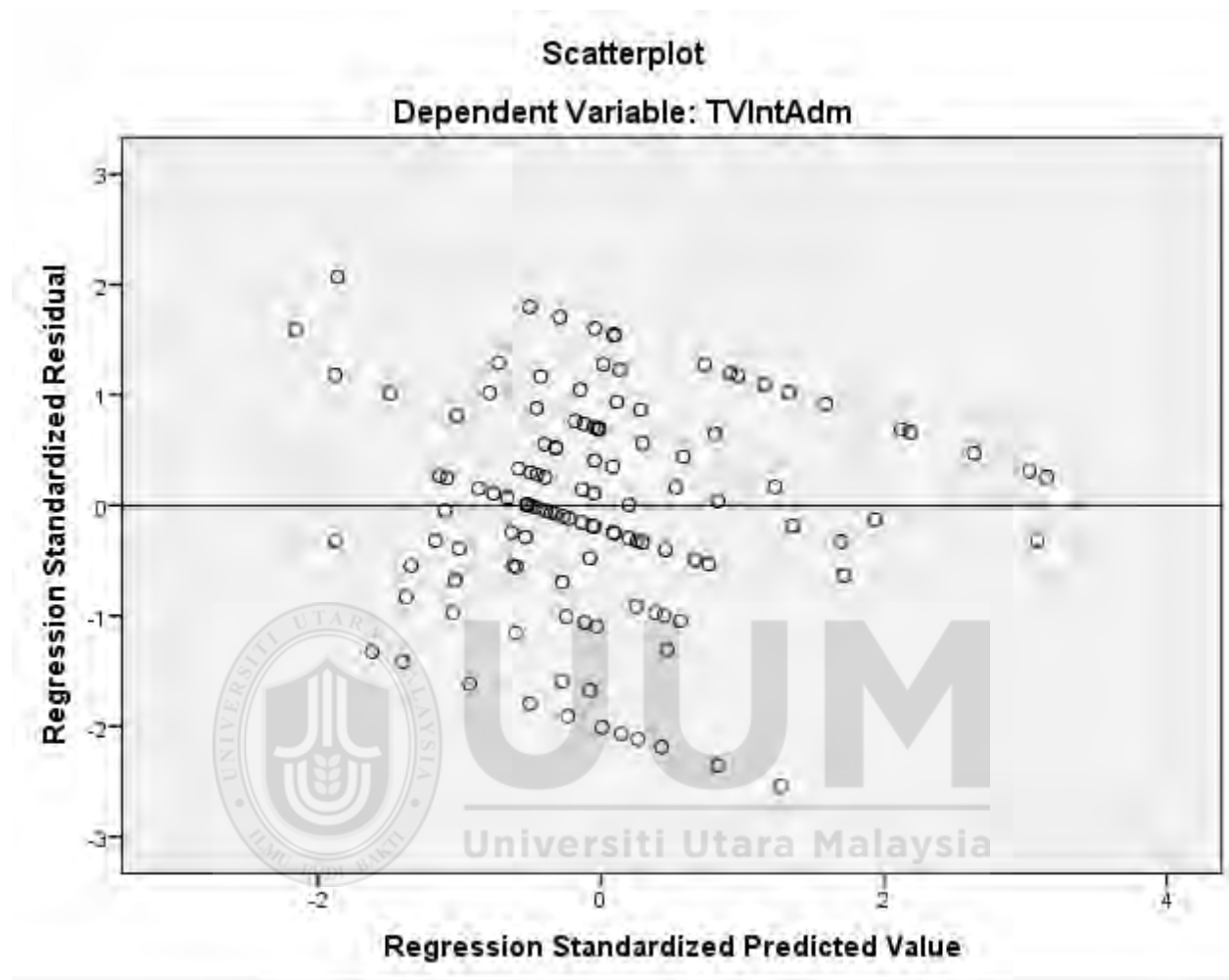
Appendix D1: Linearity scatterplot for overall extent of IS adoption



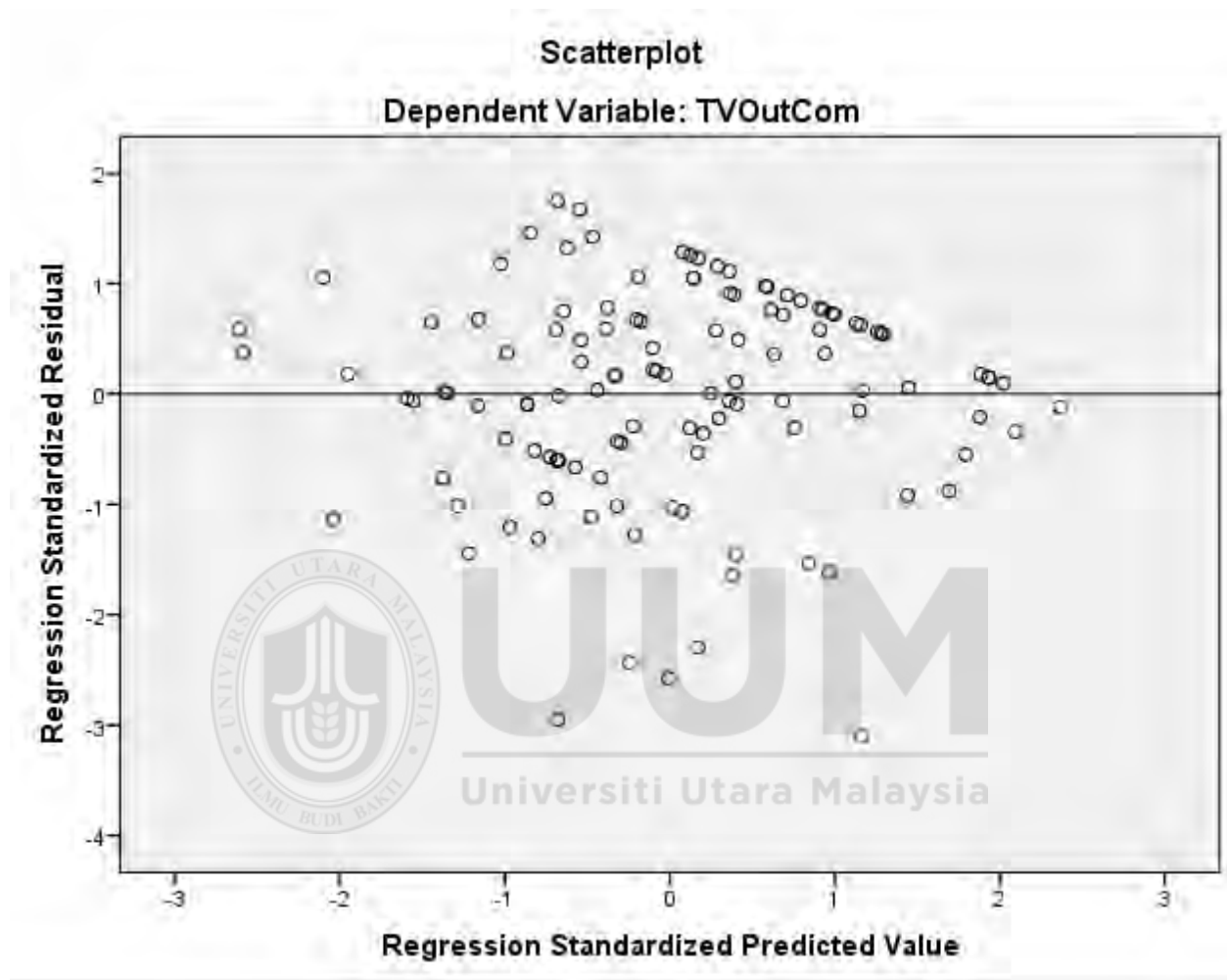
Appendix D2: Linearity scatterplot for IS adoption for internal communication.



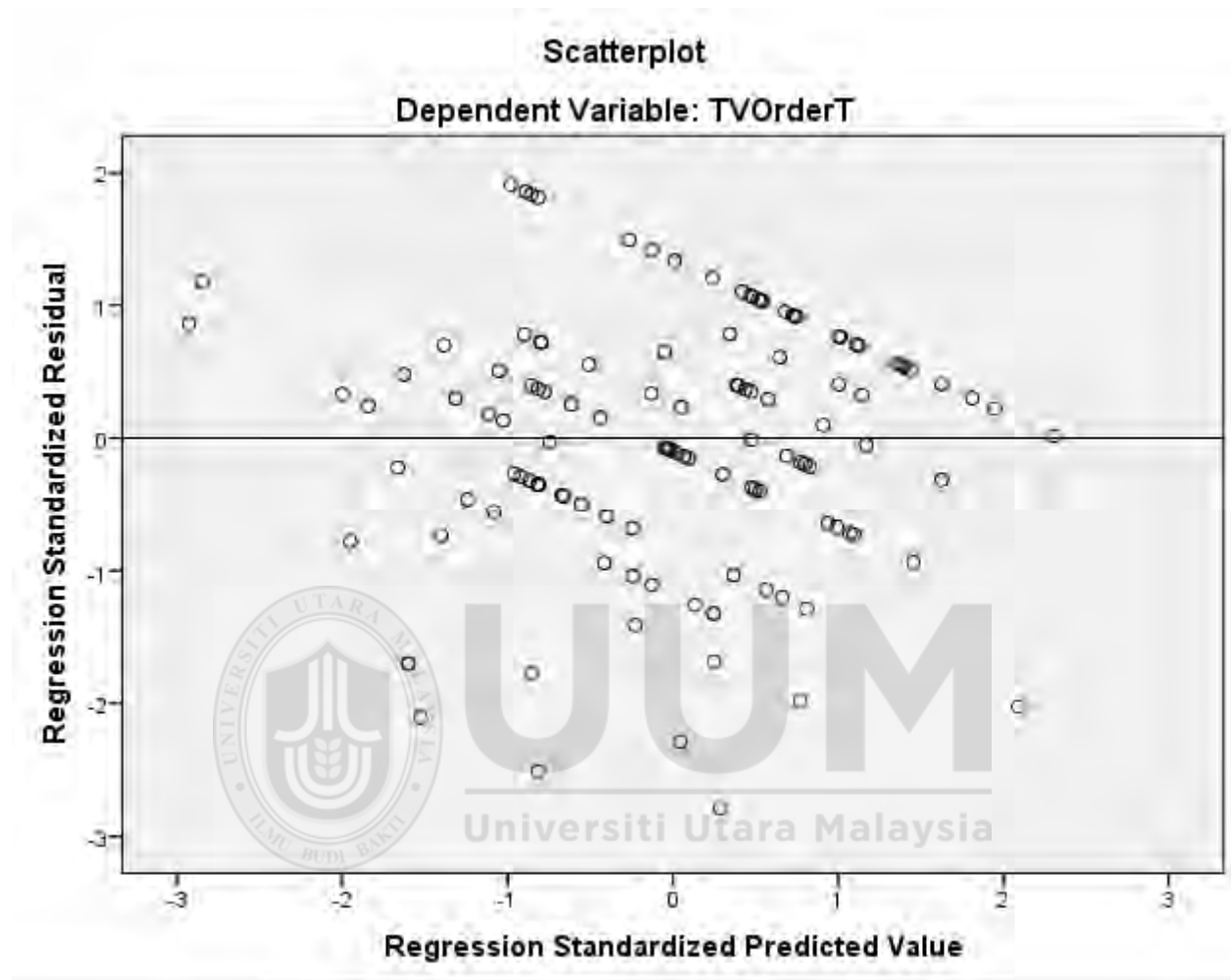
Appendix D3: Linearity scatterplot for IS adoption for internal administration.



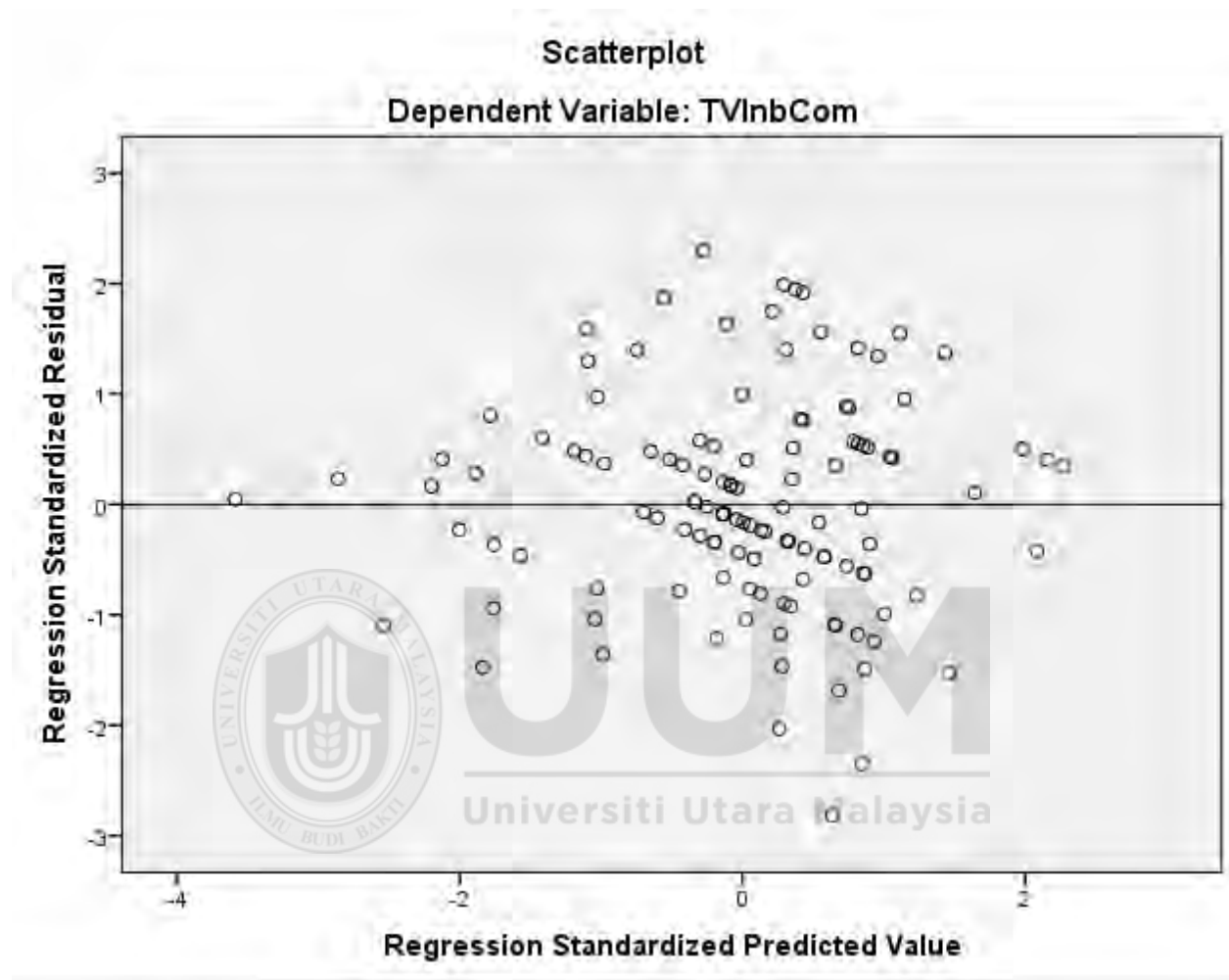
Appendix D4: Linearity scatterplot for IS adoption for outbound communication.



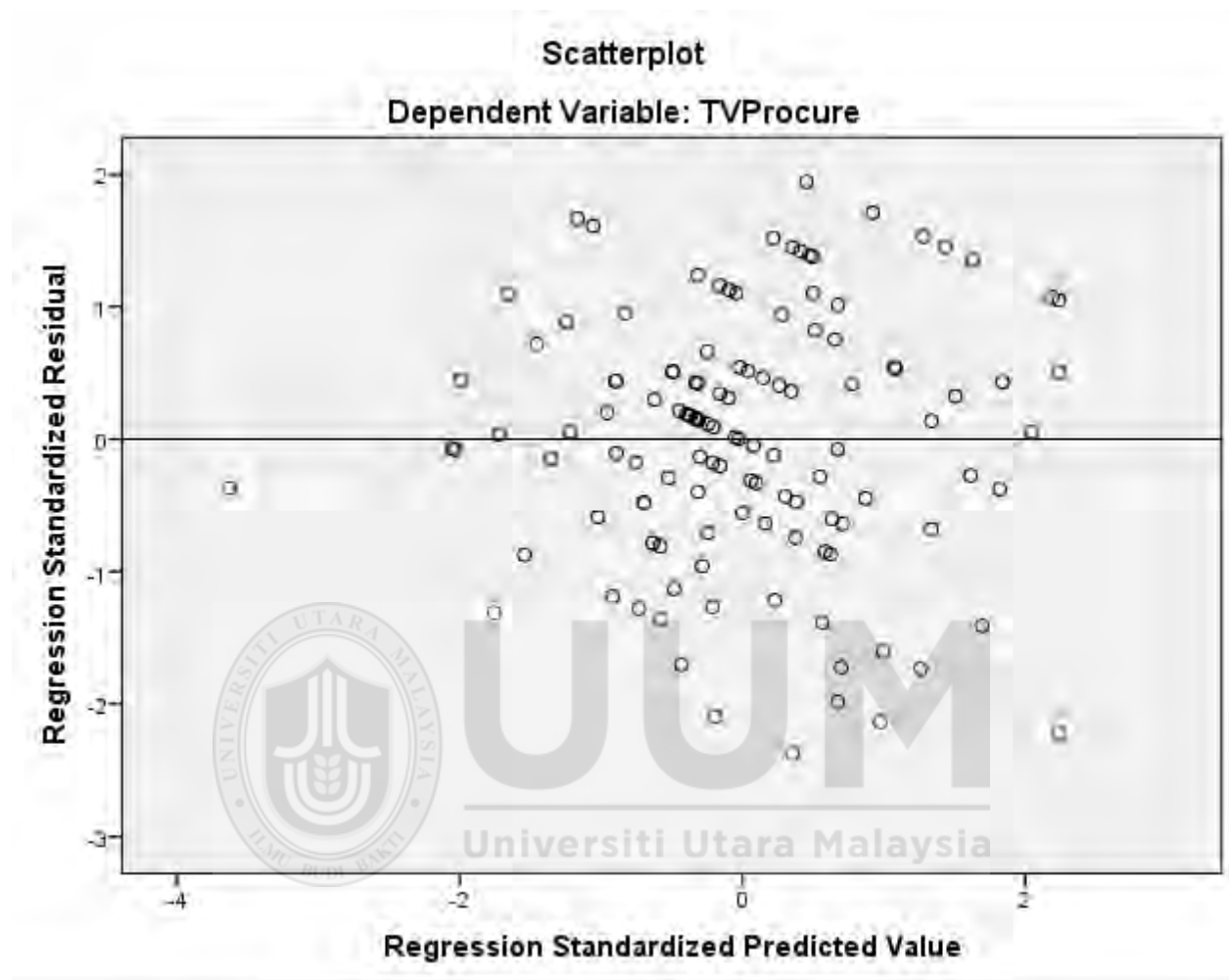
Appendix D5: Linearity scatterplot for IS adoption for order-taking.



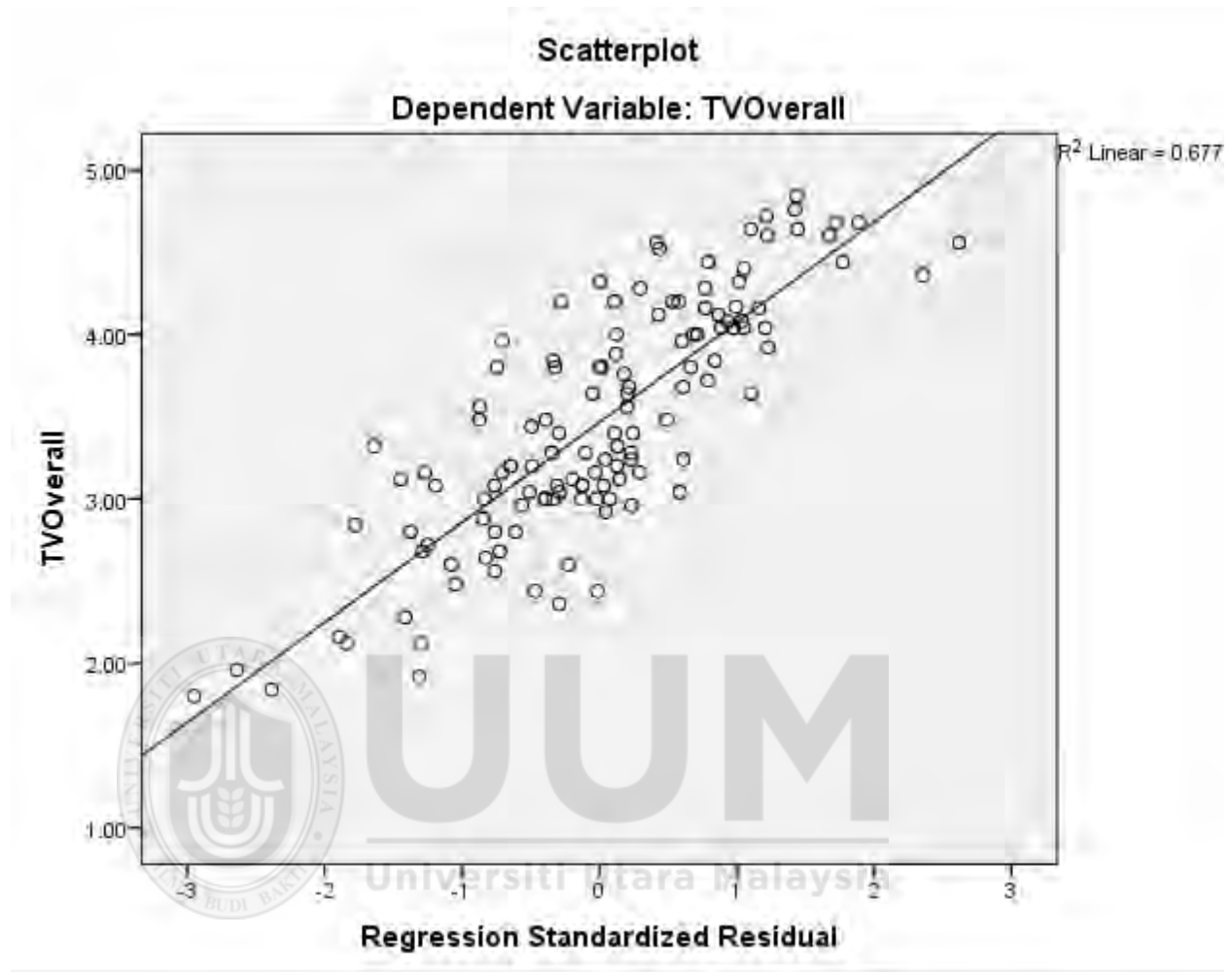
Appendix D6: Linearity scatterplot for IS adoption for inbound communication.



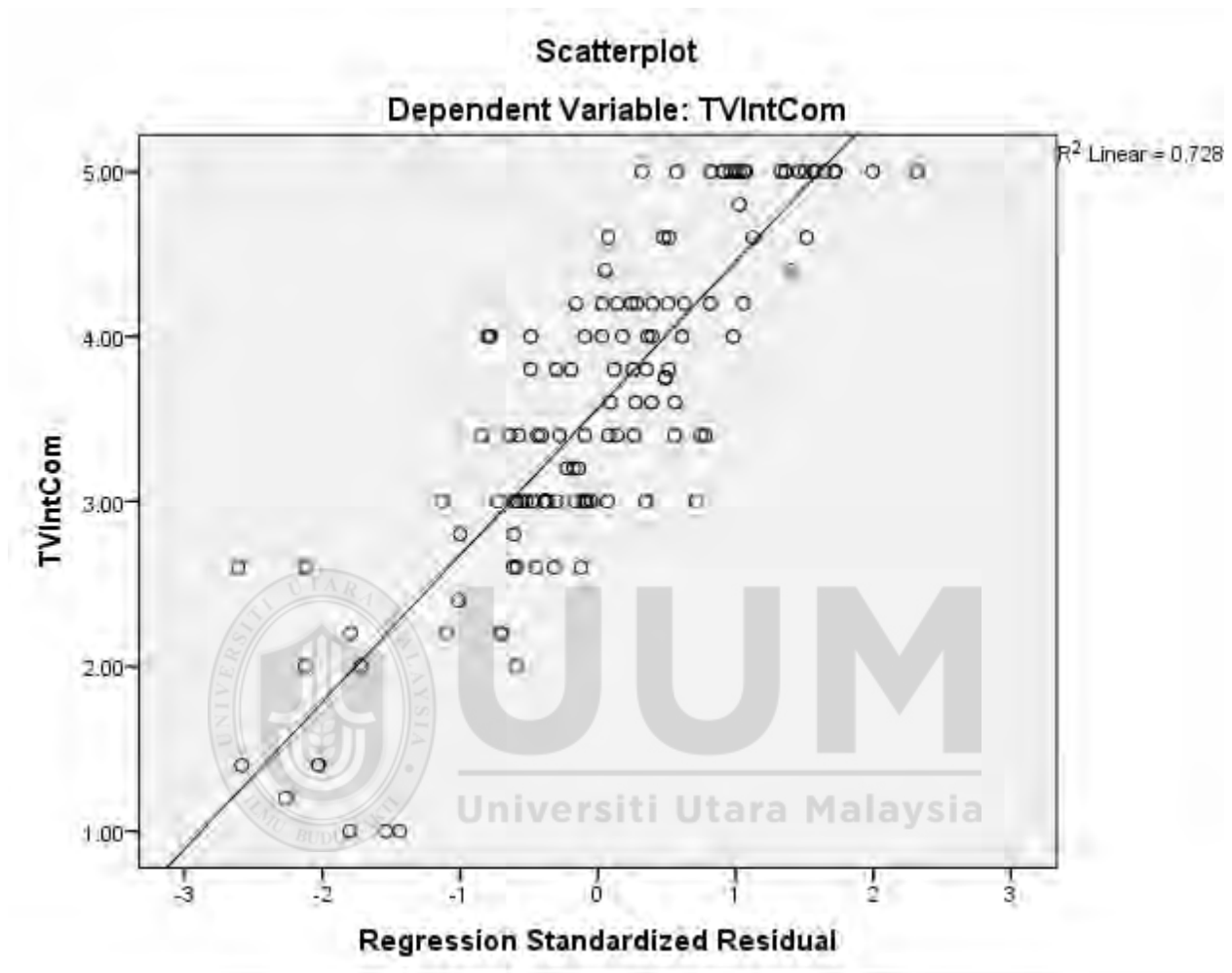
Appendix D7: Linearity scatterplot for IS adoption for procurement.



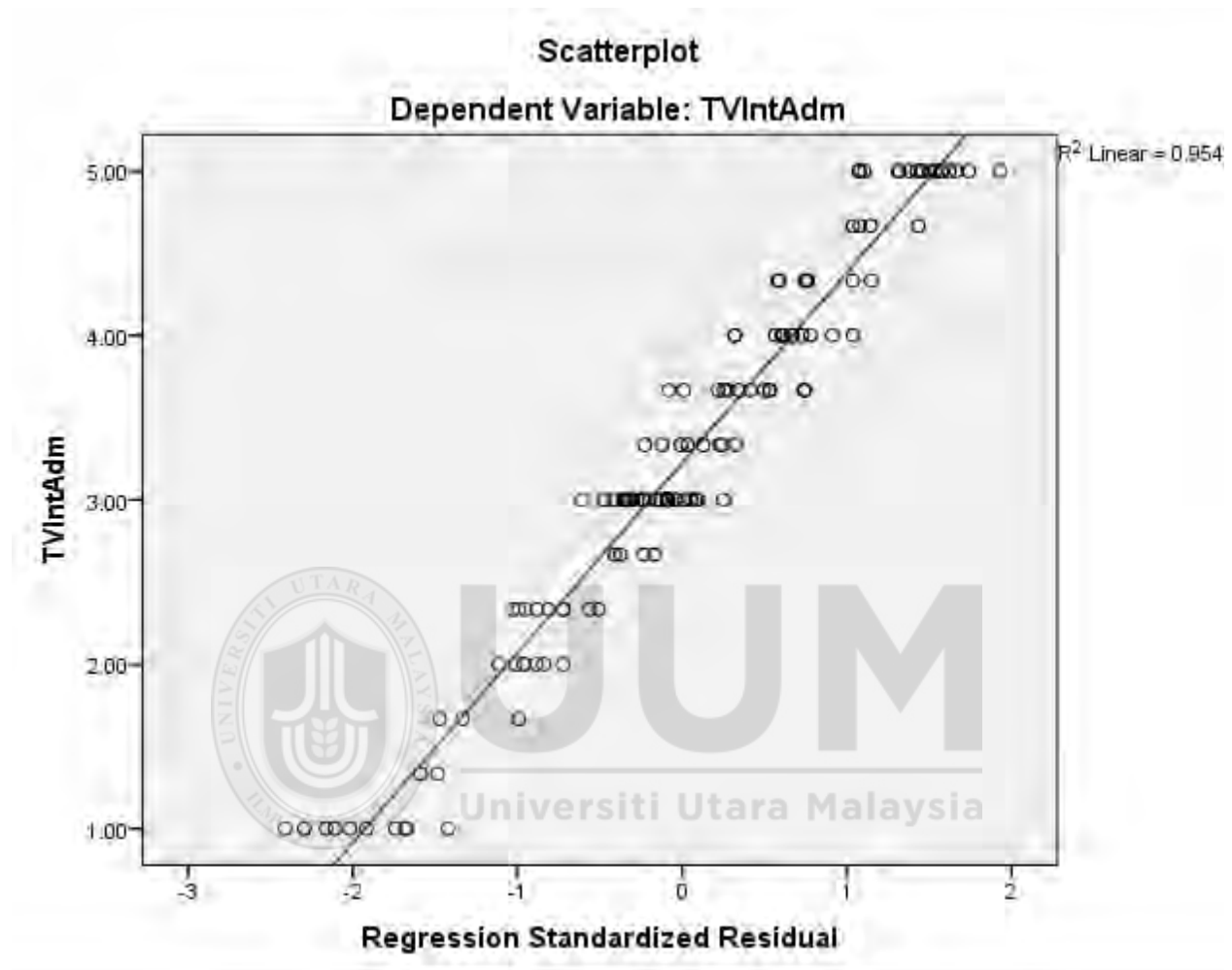
Appendix E1: Homoscedasticity residual scatterplot for overall extent of IS adoption



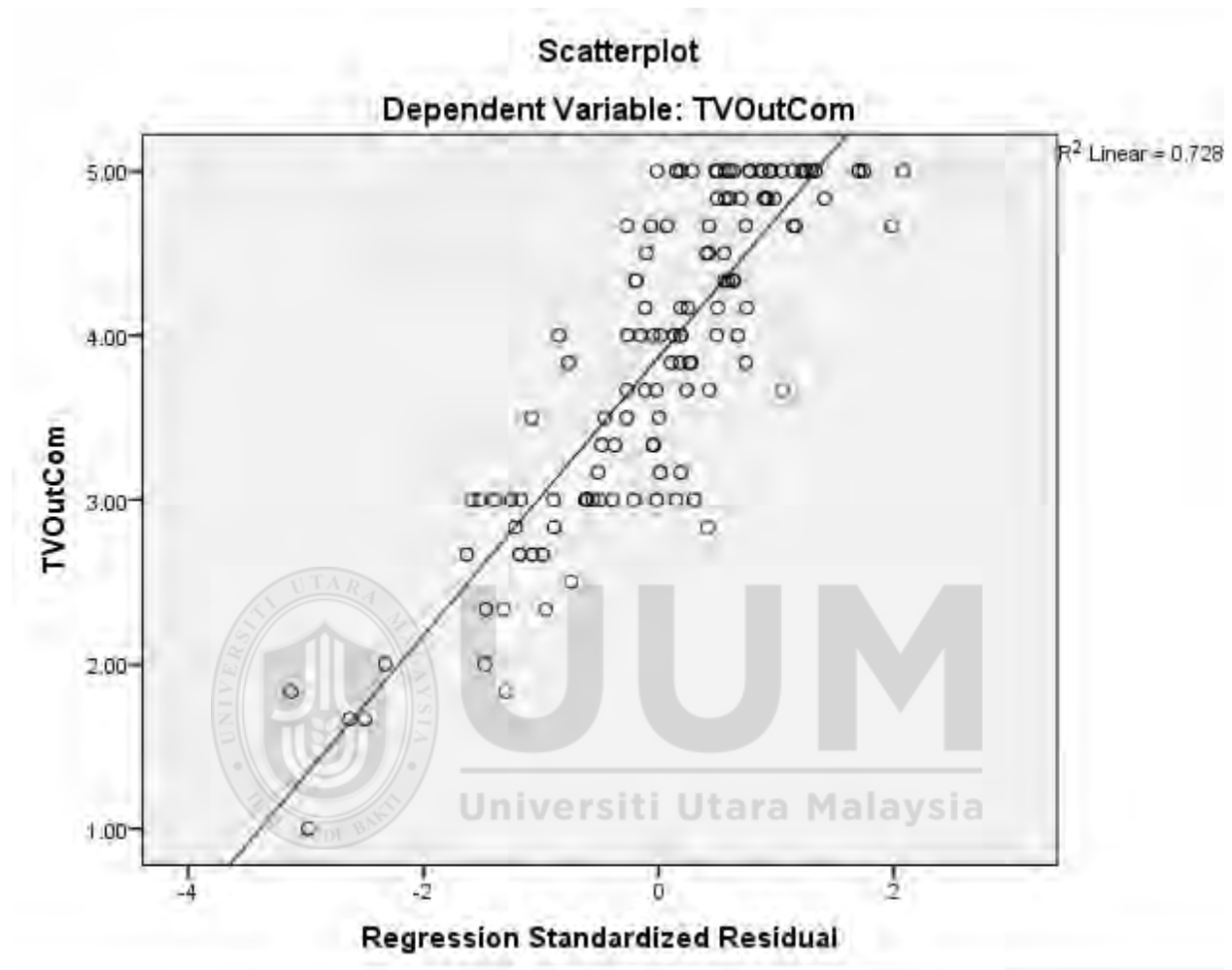
Appendix E2: Homoscedasticity residual scatterplot for IS adoption for internal communication.



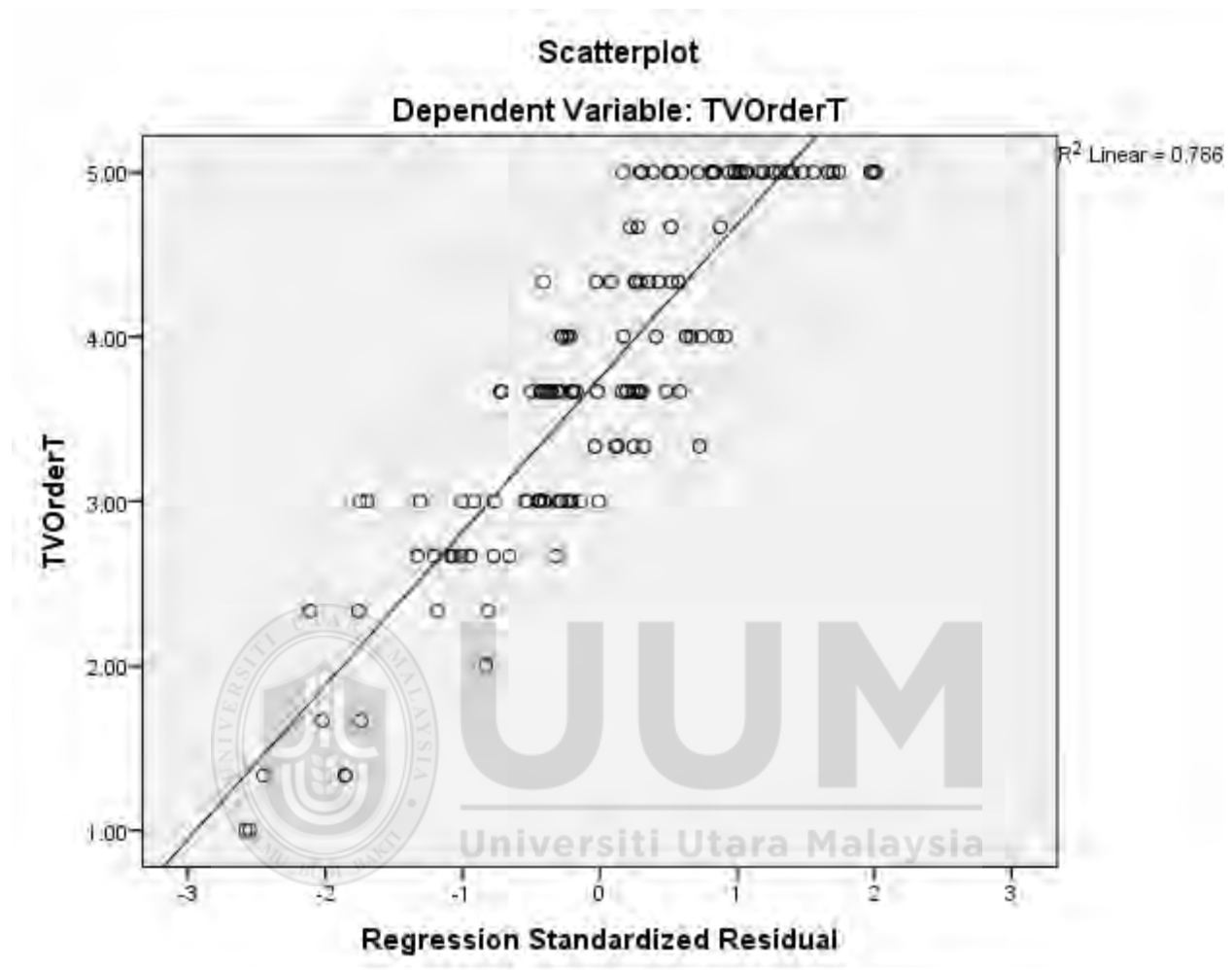
Appendix E3: Homoscedasticity residual scatterplot for IS adoption for internal administration.



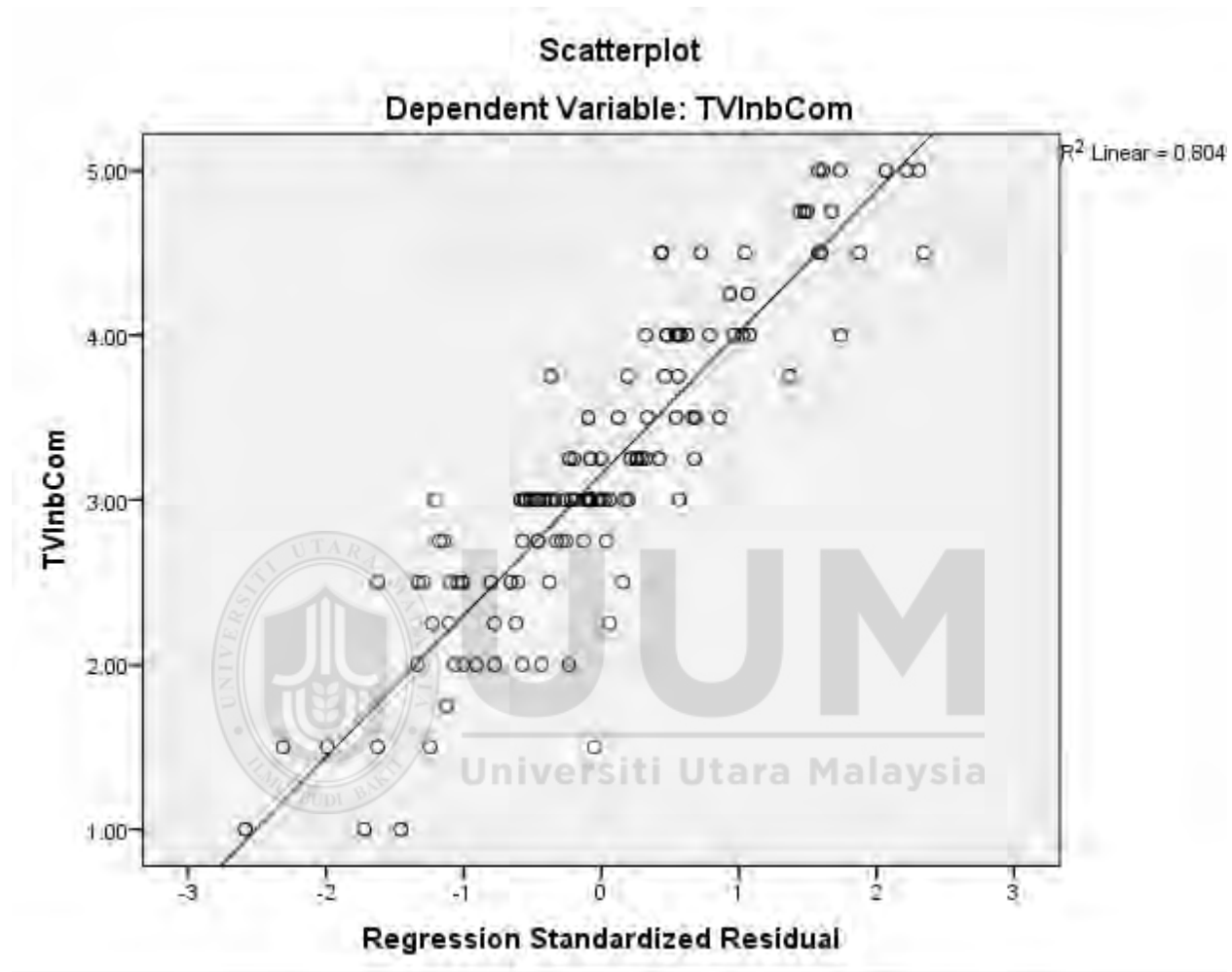
Appendix E4: Homoscedasticity residual scatterplot for IS adoption for outbound communication.



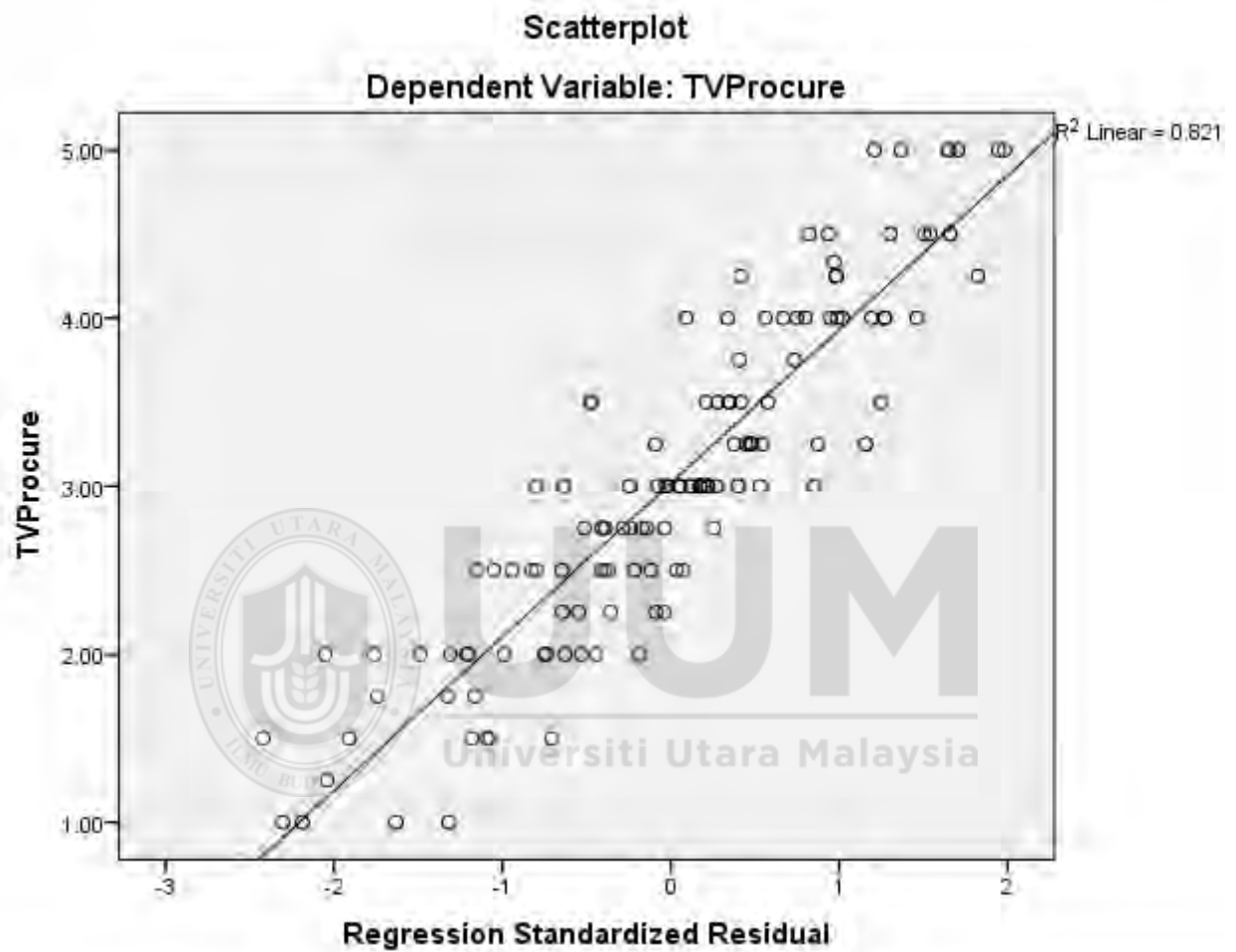
Appendix E5: Homoscedasticity residual scatterplot for IS adoption for order taking.



Appendix E6: Homoscedasticity residual scatterplot for IS adoption for inbound communication.



Appendix E7: Homoscedasticity residual scatterplot for IS adoption for procurement.



Appendix F: Cover letter to the printing firms and questionnaires.





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KEDAH DARULAMAN
MALAYSIA



Tel.: 604-928 7101/7113/7130
Faks (Fax): 604-928 7160
Laman Web (Web): www.oyagsb.uum.edu.my

"MUAFAKAT KEDAH"

UUM/OYAGSB/R-4/4/1
21 September 2017

TO WHOM IT MAY CONCERN

Dear Sir/Madam,

LETTER OF RECOMMENDATION FOR DATA COLLECTION AND RESEARCH WORK

This is to certify that Hiew Tze Kong (Matric No: 93879) is a student of Othman Yeop Abdullah Graduate School of Business, Universiti Utara Malaysia pursuing his Doctor of Business Administration (DBA). He is conducting a research entitled "**Information System Adoption in SME Printing Industry**" under the supervision of Assoc. Prof. Dr. Thi Lip Sam.

In this regard, we hope that you could kindly provide assistance and cooperation for him to successfully complete the research. All the information gathered will be strictly used for academic purposes only.

Your cooperation and assistance is very much appreciated.

Thank you.

"BERKHIDMAT UNTUK NEGARA"
"ILMU, BUDI, BAKTI"

Yours faithfully

FADHLINA BINTI MD PUDZI
Assistant Registrar
for Dean
Othman Yeop Abdullah Graduate School of Business

c.c - Supervisor
- Student's File (93879)

Universiti Pengurusan Terkemuka
The Eminent Management University



Please put a tick (v) in the appropriate box.

To: Owner/CEO of printing companies.

This Survey is about the adoption of Information System (IS) in your company. Information System (IS) adoption include the use of computers, hardwares, softwares, smartphones, websites, cloud computing, social media (WhatsApp, WeChat, Facebook, Twitter, Instagram etc), email, online payment, internet commerce and other Information and Communication Technology systems.

Part 1 - Organization Profile

Company Profile

1	Type of company	<input type="checkbox"/> Sole Proprietor	<input type="checkbox"/> Partnership	<input type="checkbox"/> Private Ltd (Sdn Bhd)	<input type="checkbox"/> Others _____ (Please specify)
2	Location	<input type="checkbox"/> Perlis	<input type="checkbox"/> Kedah	<input type="checkbox"/> Pulau Pinang	<input type="checkbox"/> Terengganu
		<input type="checkbox"/> Kelantan	<input type="checkbox"/> Perak	<input type="checkbox"/> Pahang	<input type="checkbox"/> Selangor
		<input type="checkbox"/> Negri Sembilan	<input type="checkbox"/> Melaka	<input type="checkbox"/> Johor	<input type="checkbox"/> Sabah
		<input type="checkbox"/> Sarawak	<input type="checkbox"/> Federal Territories (Kuala Lumpur)	<input type="checkbox"/> Federal Territories (Labuan)	
3	Years in Business	<input type="checkbox"/> less than 5 years	<input type="checkbox"/> 5 to 10 years	<input type="checkbox"/> 11 to 15 years	
		<input type="checkbox"/> 16 to 20 years	<input type="checkbox"/> above 20 years		
4	Number of Employees	<input type="checkbox"/> Less than 5 (Micro)	<input type="checkbox"/> 5 to 74 (Small)	<input type="checkbox"/> 75 to 200 (Medium)	<input type="checkbox"/> Above 200 (non SME)
5	Annual Turnover	<input type="checkbox"/> Less than RM300,000 (Micro)	<input type="checkbox"/> RM300,000 to RM 15Million (Small)	<input type="checkbox"/> RM15 million to RM50 million (Medium)	
		<input type="checkbox"/> above RM50 million (non SME)			
6	Types of Printing Machine (May choose more than 1)	<div style="display: flex; justify-content: space-between;"> <div> <input type="checkbox"/> 1 colour machine _____ <input type="checkbox"/> 4 colour machine _____ <input type="checkbox"/> Others _____ (Please specify) </div> <div> <input type="checkbox"/> 2 colour machine _____ <input type="checkbox"/> 8 colour machine _____ </div> </div>			
7	Has a Company Website	<input type="checkbox"/> Yes	<input type="checkbox"/> No		

Please put a tick (v) in the appropriate box.

Part 2 - Owner/CEO's Innovativeness

		Strongly disagree		Neutral		Strongly agree
1	I have original ideas.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
2	I often risk doing things differently.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
3	I cope with several new ideas at the same time.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
4	I have fresh perspective on old problem.	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

Part 3 - Organization Context

Company's Resources

- | | Strongly disagree | | Neutral | | Strongly agree |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 Our employees are generally aware of the function of Information System (IS). | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Our firm hires highly specialize or knowledgeable personnel for conducting business using information System (IS). | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Our employees are well trained in using Information System (IS). | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Our company allocate annual budget for Information System (IS). | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Part 4 - Technology Context

This part is about your perception on Information System (IS). Please select the level closest to how you feel about IS adoption as Technology.

Relative Advantages

- | | Strongly disagree | | Neutral | | Strongly agree |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 I perceive IS to be advantageous as it can help my company to increase sale and enlarge market share. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 I perceive IS to be advantageous as it can help my company to reduce cost. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 I perceive IS to be advantageous as it can help my company to develop new business. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 I perceive IS to be advantageous as it can help my company to establish strong relationship with my suppliers. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Compatibility

- | | Strongly disagree | | Neutral | | Strongly agree |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 5 I perceive IS to be compatible with our earlier IS experience. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 I perceive IS to be consistent with our business needs. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 I perceive IS to be compatible with our suppliers and customers needs. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Complexity

- | | Strongly disagree | | Neutral | | Strongly agree |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 8 I perceive IS to be complex when my company lacks appropriate tools. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 9 I perceive IS to be complex when my company lacks funding. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10 I perceive IS to be complex when my company lacks IS expertise. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11 I perceive IS to be complex when my company lacks industry standard. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Part 5 - Environmental Context

Please select how you feel about the situation of your company in the printing industry.

Customer Pressure

- | | Strongly disagree | | Neutral | | Strongly agree |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 Many of our customers are keen that our company should implement Information System (IS). | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 Our relationship with our major customers would have suffered if we have not implemented Information System (IS). | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 Our customers may consider us as backward if we do not implement IS initiatives. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 Our major customers demand that we establish strong IS linkage with them. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Competition

- | | Strongly disagree | | | Neutral | | | Strongly agree |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 5 The rivalry among companies in the printing industry is very intense. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 6 It is easy for our customers to switch to another printing firm for similar services/products without much difficulties. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 Our customers can easily replace our products/services with other existing products in the market which are different from ours but perform the same function. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Part 6 - Extent of IS Adoption

This part is about the extent of Information (IS) adoption in your company. Please select the closest to the degree your company uses Information Systems (IS) on these tasks.

Internal Communications (Within company)

- | | Not at all | | | Neutral | | | Always |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 1 We use Information System (IS) to facilitate internal communication between employees in different departments and locations. (eg., WhatsApp, WeChat, SMS) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 2 We use IS to update employees about developments within the company. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 3 We use IS to facilitate discussions and feedback on various issues of importance to our company. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 4 We use IS to manage projects within company. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 5 We use IS to coordinate new product development teams. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Internal Administration (Within company)

- | | Not at all | | | Neutral | | | Always |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 6 We use Information System (IS) to perform financial and managerial accounting. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 7 We use IS to provide reimbursement and manage payroll. | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 8 We use IS to manage employee benefits. (e.g. life and medical insurance) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Outbound Communications (Communication with Customers)

- | | Not at all | | | Neutral | | | Always |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 9 We provide customers with general information about our company. (e.g., website, email, WhatsApp, WeChat, Facebook) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 10 We allow customers to locate and send information to appropriate contacts within our company. (e.g., online directories) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 11 We use IS to send customer regular updates about new products and other developments within our company. (e.g., email, WhatsApp, WeChat) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 12 We use IS to provide solutions to customer problems. (e.g., online chat, WhatsApp, WeChat) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 13 We use IS to provide after-sales service to our customers. (e.g., online chat, WhatsApp, WeChat) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 14 We use IS to provide information in response to customers questions or requests. (e.g. online Q & A page, WhatsApp, WeChat) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Order Taking (Order from Customers)

- | | Not at all | | | Neutral | | | Always |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 15 We accept orders electronically from customers. (e.g. online ordering, order using WhatsApp, email, WeChat, SMS) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 16 We accept payments electronically from customers. (e.g., online payment, credit cards) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 17 We allow customers to track and inquire about their orders electronically. (e.g., our customers can check status of stock and delivery) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Inbound Communications (Communication with Suppliers)

- | | Not at all | | Neutral | | Always |
|--|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 18 We use IS to send suppliers regular updates about new products and other new developments of our company. (e.g. email, WhatsApp, WeChat) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 19 We use IS to provide specific information about product specifications that our suppliers must meet. (e.g., email, WhatsApp) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 20 We use IS to share product and inventory planning information with our suppliers. (e.g., email) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 21 We allow suppliers to directly link up to our databases. (e.g., Enterprise Resources Planning/ERP System, Supply Chain Management/SCM system) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Procurement (Buying from Suppliers)

- | | Not at all | | Neutral | | Always |
|---|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| 22 We search and locate potential suppliers online. (e.g online directories, timesdirectories.com) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 23 We place and track orders with suppliers electronically. (e.g. order using WhatsApp, email, WeChat, SMS or online order) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 24 We allow suppliers to submit bids online. (e.g. bidding using WhatsApp, online bidding) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |
| 25 We use online marketplaces to source our supplies. (eg. Alibaba.com) | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> | <input type="checkbox"/> |

Part 7 - Owner/CEO Profile

- | | | | |
|-------------------------------|--|---|--|
| 1 Gender | <input type="checkbox"/> Male | <input type="checkbox"/> Female | |
| 2 Age | <input type="checkbox"/> 18 to 30 | <input type="checkbox"/> 31 to 40 | <input type="checkbox"/> 41 to 50 |
| | <input type="checkbox"/> 51 to 60 | <input type="checkbox"/> above 60 | |
| 3 Education | <input type="checkbox"/> Primary School | <input type="checkbox"/> Secondary School | <input type="checkbox"/> Certificate and diploma |
| | <input type="checkbox"/> Bachelor Degree | <input type="checkbox"/> Master's Degree | <input type="checkbox"/> Doctorate Degree |
| 4 CEO's Tenure (Years as CEO) | <input type="checkbox"/> less than 5 years | <input type="checkbox"/> 5 to 10 years | <input type="checkbox"/> 10 to 15 years |
| | <input type="checkbox"/> 15 to 20 years | <input type="checkbox"/> above 20 years | |

If the have any comments on the printing industry, please write them down

THANK YOU